Bariatric Handrail Scale w/ Seat

240-10-1 Series

Software Revision 11387

Operation Instructions

RICE LAKE
WEIGHING SYSTEMS
To be the best by every measure®

114557

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*Technical training seminars are available through Rice Lake Weighing Systems. Course descriptions and dates can be viewed at **www.ricelake.com** or obtained by calling 715-234-9171 and asking for the training department*

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Rice Lake continually offers web-based video training on a growing selection of product-related topics at no cost. Visit www.ricelake.com/webinars.

1.0 Introduction

The Rice Lake Digital Bariatric Handrail Scale with fold down seat is designed for weighing bariatrics and ensures sound, accurate weighing information. A non-skid platform paired with side rails assists persons who need extra support and safety. The fold down chair allows patients to sit down while being weighed. The scale is set up to use motion sensing technology, to determine the actual weight of a moving patient. The weight is displayed on the indicator and can be displayed in pounds or kilograms and has an impressive 1000 lb capacity.

This manual can be viewed and downloaded from the Rice Lake Weighing Systems web site at www.ricelake.com/health. Technical information on this product and other medical products are available on the Rice Lake Weighing Systems web site.
Rice Lake Weighing Systems is an ISO 9001 registered company.

Figure 1-1. Digital Bariatric Handrail Scale with Fold Down Chair

2.0 Scale Assembly

2.1 Unpacking Your Scale

Place the unopened box in an open area that has ample room for unpacking the scale.

Parts contained in the shipping box include:

- The scale
- This manual
- Small box containing AC adaptor and RS-232 cable
- 6 mm Allen Key

2.2 Repacking

If the Digital Bariatric Handrail Scale must be returned for modification, calibration or repair, it must be properly packed with sufficient packing materials. Whenever possible, use the original carton when shipping the scale back.

NOTE: *Damage caused by improper packaging is not covered by the warranty.*

2.3 Setting Up Your Scale

Use the following steps to set up the Digital Bariatric Handrail Scale with seat.

1. Locate the user's manual from inside the box and set aside as it will provide instructions on the proper scale removal and set up.
2. Using two people, remove the scale out of the packaging material that it came in by lifting the scale out of the box by the scale base.

NOTE: *DO NOT lift the scale out of the box by its handle as this can cause the hinges to break.*

3. Move the scale into the area where the weighing process will occur. It's recommended to place the scale on a hard, level surface for the most accurate weighments. Thin carpeting is fine but not recommended.
4. Gently set the scale platform down to the floor.
5. Loosen the handles and unfold and set upright.
6. Screw in all four legs.
7. Attach the wrap around rails.
8. Tighten the hex screw head using the enclosed 6 mm Allen key to stabilize the scale.

Adjusting the Scale Feet

There must be adequate clearance between the scale base and the floor so screw each foot out counterclockwise two full turns. This will ensure that there is enough clearance between the scale base and the floor.

Gently set the scale base down to the floor. There should be minimal clearance between the scale base and the floor without having the scale base actually touching the floor. By not having clearance around the scale base will cause inaccurate weighments.

It's also important to make sure that the scale is completely level. Gently press down on all corners of the scale base to ensure that there are no high spots or rocking of the scale base.

Unfold Platform Seat

The Digital Bariatric Handrail Scale comes with a fold down seat for those patients who need to be weighed while seated. To unfold the seat, simply pull down on the seat bottom as shown in Figure 2-1.

Figure 2-1. Unfolding the Seat

AC Power Connections

The Digital Bariatric Handrail Scale has a 120 VAC adaptor or 230 VAC adaptor to use when power is readily available. The AC power adaptor plugs into the back of the indicator as shown in Figure 2-2.

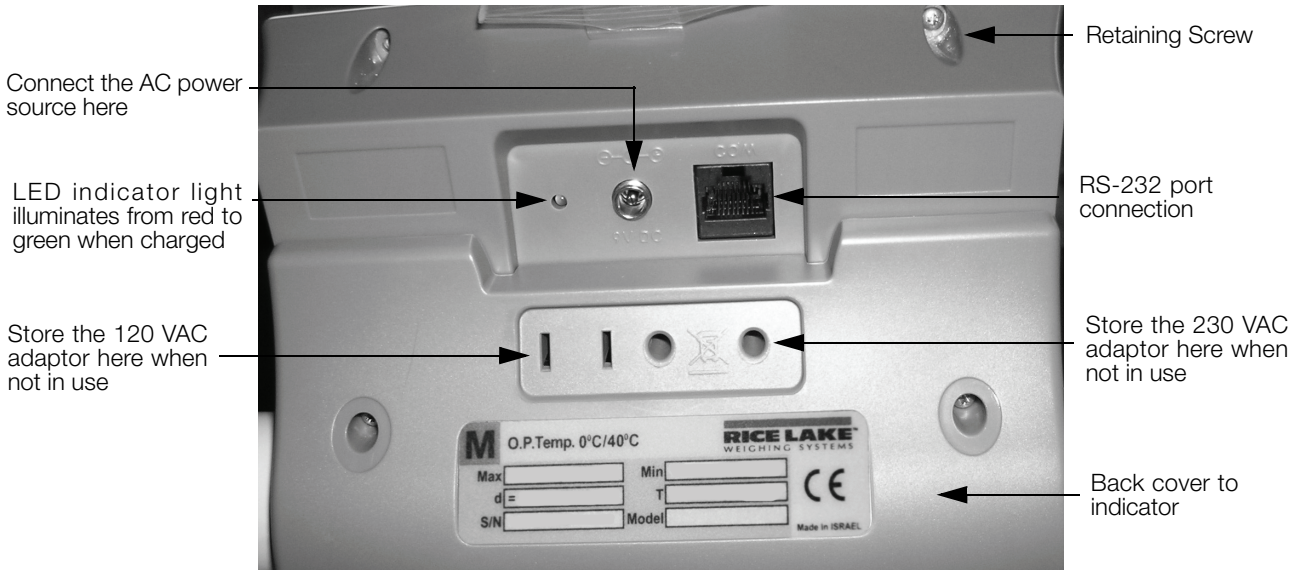

Figure 2-2. LED Light Location

The AC adaptor, when not in use, plugs into the back housing of the indicator for storage. Figure 2-2 shows that location.

The Digital Bariatric Handrail Scale is capable of running its internal sealed lead-acid rechargeable battery if no additional power source is available. Battery life is approximately 75 hours. If the *LO Bat* indicator is showing on the display, recharge the battery or connect the scale to an AC power source as soon as possible for accurate weighing.

Battery Charging

When the AC adaptor is connected to a power source, the rechargeable battery goes into recharge mode.

NOTE: ***To maintain battery longevity we recommend you charge it on a regular basis rather than waiting until it is fully discharged.***

The LED indicator light on the back of the scale housing will illuminate red during the charging period, and change over to green when the battery becomes fully charged.

Attaching the Indicator to the Scale Handle

Use the following steps to attach the indicator to the scale.

1. Unscrew the four back cover screws, remove the back cover and place screws in a secure place along with the back cover. The screw location is shown in Figure 2-3.
2. Unscrew the six screws on the back panel plate of the scale and position the indicator to it and screw

back the six screws to secure the indicator to the scale handle as shown in Figure 2-3.

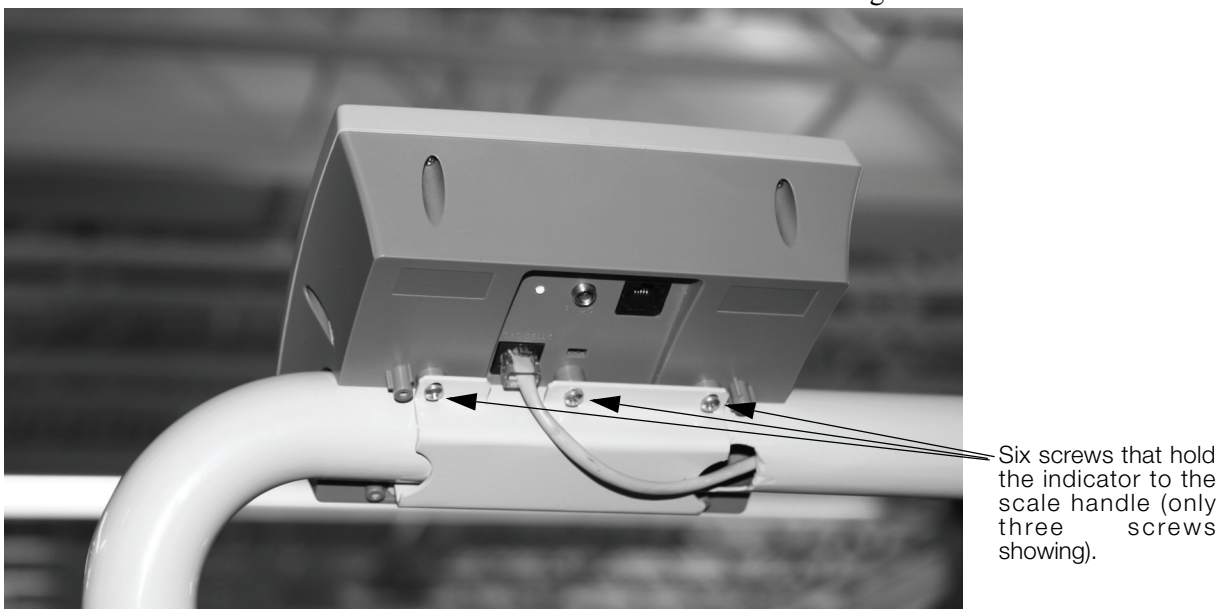

Figure 2-3. Mounting Bracket Screw Location

Load Cell Connections

To gain access to the load cell connection point, remove the four back retaining screws as shown inFigure 2-3. Figure 2-4 illustrates where the load cell connection point is.

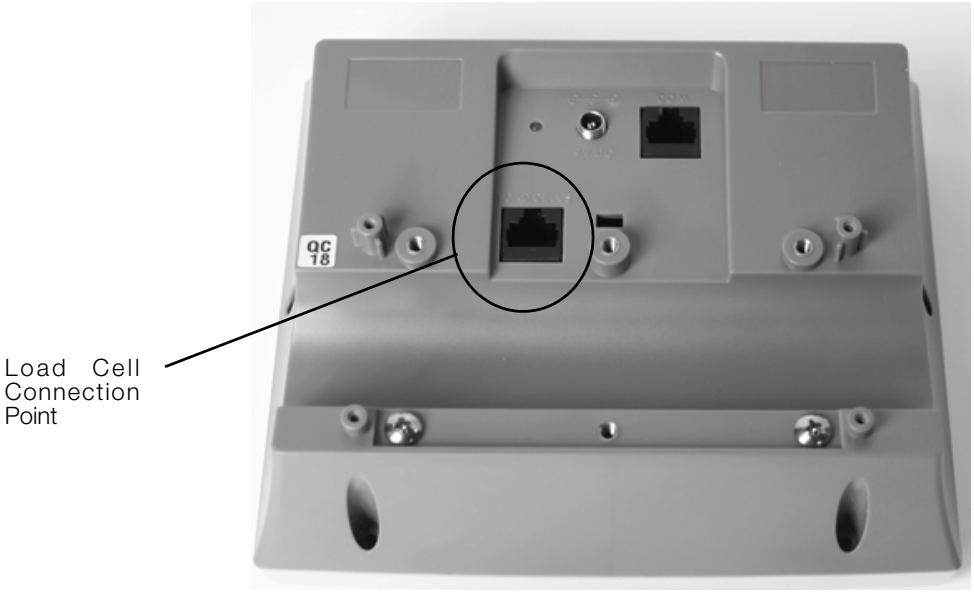

Figure 2-4. Load Cell Connection Point

Connect the load cell into the load cell connection point. You will hear a "click" affirming a secure connection. Put the back on the indicator and secure with the four back cover screws that were previously set aside.

2.4 Getting Ready to Weigh a Patient

Once the scale is properly unpacked and set up, and prior to weighing a patient, step on the scale to check the scale that all functions are working correctly. The scale is calibrated from the factory so simply turn on the scale and step on the scale to get a weight reading. Press the **REWEIGH** key again to verify that weight.

Figure 2-5. Press the Reweigh Key to Verify Weight

3.0 Scale Operation

The display has various front panel keys. They are shown below.

Figure 3-1. Front Panel Display Keys

Key	Name	Function
	ON-OFF/ZERO	ON-OFF - Switches the scale on or off. ZERO - Clears weight off the scale and returns it back to zero.
	BMI/TARE	BMI - Enables the user to access the BMI (Body Max Index) function. TARE - Used to subtract a weight off the scale ie: wheelchair.
	REWEIGH	Allows you to reweigh a patient without having them leave the scale.
	Kg-Lb/PRINT	Allows the user to toggle between kilograms and pounds. Press this key to print a weight if connected to a printer.

Table 3-1. Key Functions

Caution ***The keys on the front panel display are very sensitive so only a gentle pushing motion is required to obtain results.***

The scale has the capability of performing different operations beyond just calculating weight. The various operating instructions are described below.

3.1 Weighing

Use the following steps to weigh a person.

1. Press the **On-Off/Zero** key to turn on the scale and *0.0* will appear on the display.
2. Have the patient step onto the scale. The display shows *WEIGH*, then the patient's weight, and beeps to indicate the end of the weighing process.
3. To ensure an accurate weighing, press the **REWEIGH** key.
4. To change the display from Kg to Lb and vice-versa, press the **Kg-Lb** key.
5. The scale is set to lock in the weight when the weighing process is complete. The weight will remain on the display even after the patient exits off the scale. To clear the weight, press the **On-Off/Zero** key.
6. To turn off the scale, press and hold the **On-Off/Zero** key until *OFF* appears on the display.

3.2 Using the Body Mass Index (BMI) Function

Body mass index (BMI) is the relationship between weight and height associated with body fat and health risk. It is a reliable indicator of body fatness for people and even though BMI does not measure body fat directly, research has shown the BMI correlates to direct measures of body fat. BMI is an inexpensive and easy-to-perform method of screening for weight categories that may lead to health problems for adults.

Calculating BMI is one of the best methods for population assessment of overweight and obesity. Because calculation requires only height and weight, it is inexpensive and easy to use for clinicians and for the general public. The calculation is based on the following formulas:

Calculate BMI by dividing weight in pounds (lbs) by height in inches (in) squared and multiplying by a conversion factor of 703.

Example: weight = 150 lbs, height = 5’5 (65")

Calculation: $[150 \div (65)^2] \times 703 = 24.96$

The standard weight status categories associated with BMI ranges for adults are shown in the following table.

BMI	Weight Status
Below 18.5	Underweight
18.5 - 24.9	Normal
25.0 - 29.9	Overweight
30.0 and Above	Obese

Table 3-2. Standard Weight Status

The following examples show weight ranges, the corresponding BMI ranges and the weight status categories for a sample height.

Height	Weight Range	BMI	Weight Status
5’9”	124 lbs or less	Below 18.5	Underweight
	125 lbs to 168 lbs	18.5 to 24.9	Normal
	169 lbs to 202 lbs	25.0 to 29.9	Overweight
	203 lbs or more	30 or higher	Obese

Table 3-3. BMI Ranges and Weight Status Example

Use the following steps in determining the BMI.

1. To use the BMI function, weigh the patient as described under Weighing (above) and then press the **BMI** key. If weighing in Lbs, the default height of (5 feet) appears on the display. Use the up or down arrows to increase the feet height by one foot increments). Press the **BMI** key again to display inches (default is 7.0 inches) Again, use the up or down arrows to increase or decrease the inches height by 0.5" increments. Press the **BMI** key again to accept the inches value. The final height value will be displayed ie: 5-07.5 = 5’ 7.5".
2. If you are weighing in Kgs, the default will be 170.0 cm. Use the up or down arrows to increase or decrease by 0.5 cm increments.
3. To see the patient’s calculated BMI, press the **BMI** key again. The BMI appears.
4. To cancel the BMI display, press the **BMI** key.

3.3 Using the Tare Function

You can use the tare function for deducting an extra weight (such as a wheelchair, or medical equipment attached to the patient) in a weighing operation.

Use the following steps to use the tare function.

1. With the scale set to *0.0*, place the extra load (wheelchair) on the scale. The display shows *WEIGH* and then the weight of the load.
2. Press and hold the **TARE** key until *TARE* appears on the display. The display returns to 0.0 and *TARE* appears on the left side of the display.
3. Remove the load from the scale. The weight of the load appears with a negative symbol to the left of it.
4. Have the patient step onto the scale. The display then shows the patient's weight with the load weight deducted.
5. The weight of the load remains stored in memory, so you can continue to weigh patients who are carrying the same tare weight. For example, when using the same wheelchair for weighing more than one patient.
6. To cancel the tare weight, press and hold the **TARE** key until *TARE* disappears from the display and the display returns back to *0.0*. The tare weight is also cancelled when the scale is turned off.

Use the following steps to enter a tare without placing that item on the scale. An example of this would be if you've got a patient in a wheelchair and the wheelchair has a known weight (has been tagged) you can enter that weight manually.

1. With the scale set to *0.0 Lbs* (there must be no weight on the scale), press the **TARE** key. The display will alternate between a value and the word *TARE*.
2. To change the value, press and hold the **Kg/Lb** key until the right most digit is equal to the first digit of the value you want. Example: If you want 103.5, hold the key until the display is *0.1*.
3. To advance to the next digit, press the **Kg/Lb** key twice quickly. The digit you changed will move left and the right most digit will again be *0*. Again, hold the **Kg/Lb** key until the right most digit is equal to the next digit in the numbers you want.
4. Continue as in Step 3 until you are displaying the value you want, then press the **TARE** key.
5. You can now accurately weigh the patient.
6. To cancel the tare weight, press and hold the **TARE** key until *TARE* disappears from the display and the display returns back to *0.0*. The tare weight is also cancelled when the scale is turned off.

4.0 RS-232 Communication

The scale comes with an RS-232 port which enables weight data to be transmitted to other equipment, such as a computer or printer. The RS-232 cable with DB-9 connector (PN 100719) is available from Rice Lake Weighing System. Figure 2-2 on page 4 shows where the RS-232 connection is.

The RS-232 parameters are 9600 baud (selectable in the programming mode), 8 data bits, 1 stop bit, no parity and no handshaking.

There are three methods of communication:

- Pushbutton keypad print
- Standard remote protocol
- Escape protocol

4.1 Pushbutton Keypad Print

With a stable, in-range weight, press and hold the **Kg-Lb/Print** key for at least three seconds, or until the scale emits two quick beeps. Note that if the scale does not beep after five seconds, then release the button as the weight was either in motion, or out of range.

- If displaying weight and not BMI, the scale will send out the following 21 character string:

xxxxxxxxx<SP>uu<SP>mmmmm<SP><CR><LF>

Where:

xxxxxxxxx is the weight with decimal point and " - " sign, if negative uu is the unit (lb or kg).

mmmmm is the mode (gross or net)

Examples:

-10 Lb net = <SP><SP><SP><SP>-10.0<SP>lb<SP><SP>Net<SP><SP><SP><CR><LF>

10 Lb gross = <SP><SP><SP><SP><SP>-10.0<SP>lb<SP>Gross<SP><CR><LF>

- In BMI mode (displaying the BMI value), the scale will send out the following data:

GROSS WEIGHT	215.0 LB
TARE WEIGHT	0.0 LB
NET WEIGHT	215.0 LB
PATIENT HEIGHT	6-01.0 FT
PATIENT BMI	28.4

5.0 Troubleshooting

Refer to the following instructions to check and correct any failure before contacting service personnel.

Symptom	Possible Cause	Corrective Action
Scale does not turn on	Dead battery	Connect the scale to a power source.
	Faulty electrical outlet	Use a different electrical outlet.
	Bad power supply	Replace adaptor.
Questionable weight or the scale does not zero	External object is interfering with the scale	Remove the interfering object from the scale.
	Display did not show 0.0 before weighing	Help the patient off the scale, zero the scale and begin the weighing process again.
	Scale is not placed on a level floor	Ensure the scale is level using the spirit level on the platform and begin the weighing process again.
	Scale is out of calibration	Check the weight with a known weight value.
	Improper tare	Place the patient on the scale. Press **REWEIGH**. Once the weight of the item is displayed, press **TARE**. Place the patient back on the scale. Press the **REWEIGH** button again.
Weighing is performed but the display shows *WEIGH* and *REWEIGH* every few seconds; the weighing process takes too long and no weight is displayed	The patient is not sitting still	Ask the patient to be still.
The display shows a *STOP* message	The load on the scale exceeds the capacity of the scale (220 kg)	Remove the excess weight and use the scale according to manufacture's specs.
The display shows *LO Bat* message	The battery is low	Recharge the battery.
The display shows Err message as detailed in the table below		
Err 2	Low saturation state (low A/D)	The load cell is not connected properly. Check the cables and mechanical connections. If the problem persists, replace the set of load cells.
Err 3	High saturation state (high A/D)	See Err 2
Err 6	Unstable weight. Cannot calibrate	Check the load cells' mechanical surroundings and see that nothing touches them and that the cables are properly welded.

Table 5-1. Troubleshooting Table for the Rice Lake Scale Line

6.0 Maintenance

The following section provides instructions for maintaining and cleaning the Rice Lake line of scales. Maintenance operations other than those described in this section should be performed by qualified service personnel.

6.1 Basic Maintenance

Before the first use of the scale and after periods of non-use, check the scale for proper operation and function. If the scale does not operate correctly, contact qualified service personnel.

Go through the following steps for basic maintenance.

1. Check the overall appearance of the entire scale for any obvious signs of damage, abuse, etc.
2. Inspect the condition of the AC adaptor for cord cracking or fraying or for broken or bent prongs.

6.2 Cleaning

Proper care and cleaning is essential to ensure a long life of accurate and effective operation. Before beginning the cleaning process, disconnect the scale from the AC power source.

1. Clean all external surfaces with a clean, damp cloth or tissue. Mild soap and water solution may be used. Dry with a clean soft cloth.
2. Do not immerse the scale into cleaning or other liquid solutions.
3. Do not use Isopropyl alcohol or other solutions to clean the display surface.

7.0 Digital Bariatric Handrail Scale Specifications

Power
120 VAC-9VDC-50Hz / 230 VAC-9VDC-50Hz

Battery Type
Sealed lead acid battery

Battery Use
75 hours
Automatic power-off can be configured from 0 - 20 minutes

Data Communications
RS-232 with RJ-45 jack
Selectable baud rate, default - 9600
8 bits
No parity
1 stop bit
No handshaking

Environmental
Operating Temperature
50 to +104°F (14 to 40°C)
Storage Temperature
32 to 158°F (0 to 70°C)
Humidity
85% relative humidity

Capacity and Graduation
1000lb (310kg) 0.2lb (0.1kg)

Certifications and Approvals
RoHS Compliant

Dimensions
Platform Dimensions
25 in W x 20 in L x 3 in H

For More Information

System Manuals

- *Rice Lake Bariatric Handrail Scale Technical and Operating Instructions*, PN 118347

Literature

- *Medical Scales, Handrail Scale*, *4 color* PN 106426

Web Site

- http://www.ricelake.com/health

Contact Information

Hours of Operation

Knowledgeable customer service representatives are available 6:30 a.m. - 6:30 p.m. Monday through Friday and 8 a.m. to 12 noon on Saturday. (CST)

Telephone

- Sales/Technical Support 800-472-6703
- Canadian and Mexican Customers 800-321-6703
- International 715-234-9171

Immediate/Emergency Service

For immediate assistance call toll-free 1-800-472-6703 (Canadian and Mexican customers please call 1-800-321-6703). If you are calling after standard business hours and have an urgent scale outage or emergency, press 1 to reach on-call personnel.

Fax

Fax Number 715-234-6967

Email

- US sales and product information at prodinfo@ricelake.com
- International (non-US) sales and product information at intlsales@ricelake.com

Mailing Address

Rice Lake Weighing Systems

230 West Coleman Street

Rice Lake, WI 54868 USA

Digital Bariatric Handrail Scale Limited Warranty

Rice Lake Weighing Systems (RLWS) warrants that all RLWS equipment and systems properly installed by a Distributor or Original Equipment Manufacturer (OEM) will operate per written specifications as confirmed by the Distributor/OEM and accepted by RLWS. All systems and components are warranted against defects in materials and workmanship for two years.

RLWS warrants that the equipment sold hereunder will conform to the current written specifications authorized by RLWS. RLWS warrants the equipment against faulty workmanship and defective materials. If any equipment fails to conform to these warranties, RLWS will, at its option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by Buyer of such nonconformity, RLWS will be given prompt written notice with a detailed explanation of the alleged deficiencies.
- Individual electronic components returned to RLWS for warranty purposes must be packaged to prevent electrostatic discharge (ESD) damage in shipment. Packaging requirements are listed in a publication, *Protecting Your Components From Static Damage in Shipment*, available from RLWS Equipment Return Department.
- Examination of such equipment by RLWS confirms that the nonconformity actually exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair or improper testing; RLWS shall be the sole judge of all alleged non-conformities.
- Such equipment has not been modified, altered, or changed by any person other than RLWS or its duly authorized repair agents.
- RLWS will have a reasonable time to repair or replace the defective equipment. Buyer is responsible for shipping charges both ways.
- In no event will RLWS be responsible for travel time or on-location repairs, including assembly or disassembly of equipment, nor will RLWS be liable for the cost of any repairs made by others.

THESE WARRANTIES EXCLUDE ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NEITHER RLWS NOR DISTRIBUTOR WILL, IN ANY EVENT, BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

RLWS AND BUYER AGREE THAT RLWS'S SOLE AND EXCLUSIVE LIABILITY HEREUNDER IS LIMITED TO REPAIR OR REPLACEMENT OF SUCH GOODS. IN ACCEPTING THIS WARRANTY, THE BUYER WAIVES ANY AND ALL OTHER CLAIMS TO WARRANTY.

SHOULD THE SELLER BE OTHER THAN RLWS, THE BUYER AGREES TO LOOK ONLY TO THE SELLER FOR WARRANTY CLAIMS.

NO TERMS, CONDITIONS, UNDERSTANDING, OR AGREEMENTS PURPORTING TO MODIFY THE TERMS OF THIS WARRANTY SHALL HAVE ANY LEGAL EFFECT UNLESS MADE IN WRITING AND SIGNED BY A CORPORATE OFFICER OF RLWS AND THE BUYER.

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